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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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EXAMINER

RENNER, CRAIG A

| ART UNIT | PAPER NUMBER |
|----------|--------------|
| 2652 | 7 |

DATE MAILED: 09/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|------------------------|---------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 09/848,674 | JAYASEKARA, WIPUL |
| | Examiner | Art Unit |
| | Craig A. Renner | 2652 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 23 June 2003.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) 5,8-10,15 and 18-46 is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-4,6,7,11-14,16 and 17 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 03 May 2001 is/are: a) accepted or b) objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ . |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>2</u> . | 6) <input type="checkbox"/> Other: _____ . |

DETAILED ACTION

Election/Restrictions

1. Claims 25-46 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to one or more non-elected inventions/species, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 4, filed 6 May 2003.
2. Applicant's election without traverse of "Species III" upon which "Claims 1, 2, 3, 4, 6, 7, 11, 12, 13, 14, 16, 17" are said to "read" in Paper No. 6, filed 23 June 2003, is acknowledged. Accordingly, claims 5, 8-10, 15 and 18-24 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to one or more non-elected inventions/species, there being no allowable generic or linking claim.

Drawings

3. The drawings are objected to because of the following informalities:
 - a. The drawings fail to comply with 37 CFR 1.84(p)(5) because they include one or more reference signs not mentioned in the description. Note, for instance, "AF" (shown in FIG. 1A, for instance), "PL" (shown in FIGS. 1A, 2A, 2B, 3A, 3B, 4A, 4B, and 7, for instance), "FL" (shown in FIGS. 1A, 2A, 2B, 3A, 3B, 4A, 4B, and 7, for instance), "H.B." (shown in FIG. 1B, for instance) and "TB" (shown in FIG. 8, for instance).

b. The drawings fail to comply with 37 CFR 1.84(p)(5) because they do not include one or more reference signs mentioned in the description. Note, for instance, "28" (disclosed as a "second lead (L2) layer" in line 9 on page 5, for instance).

A proposed drawing correction, corrected drawings, and/or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

4. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

5. The disclosure is objected to because of the following informalities:

a. In lines 16 and 17 on page 13, each instance of "second AFM layer 172" should be changed to --second AFM layer 173—in order to be consistent with the remainder of the disclosure.

b. In lines 25-26 in claim 11, "the magnet recording disk surface" should be changed to --the magnetic recording disk surface-- in order to more clearly refer back to that set forth in line 2 of claim 11.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-4, 6-7, 11-14, and 16-17 are rejected under 35 U.S.C. 102(e) as being anticipated by Komuro et al. (US 6,327,107).

Komuro teaches a direct access storage device (FIG. 10, For instance) comprising a magnetic recording disk (110) having at least one surface for storing magnetically recorded data; a magnetic read head (210) having an air bearing surface disposed for reading the data from the magnetic recording disk surface; in the magnetic read head, a magnetic tunnel junction sensor (FIG. 5, for instance) comprising a magnetic tunnel junction stack (20) with an active region disposed at the air bearing surface and having two opposite sides each disposed generally orthogonally to the air bearing surface (as shown in FIG. 5, for instance), the magnetic tunnel junction stack comprising an antiferromagnetic layer (4) spanning the active region, a pinned layer (2) of ferromagnetic material (line 3 in column 4, for instance) in contact with the antiferromagnetic layer (as shown in FIG. 5, for instance), a free layer (3) of ferromagnetic material (line 2 in column 4, for instance) spanning the active region and

extending beyond each of the two opposite sides thereof (as shown in FIG. 5, for instance), and a tunnel junction layer (1) of electrically nonconductive material (lines 2-3 in column 4, for instance) disposed between the pinned layer and the free layer in the active region (as shown in FIG. 5, for instance); and a longitudinal bias layer (7) formed on and in contact with the free layer outside of the active region (as shown in FIG. 5, for instance) for biasing the magnetic moment of the free layer in substantially a predetermined direction in the absence of an external magnetic field; an actuator (320) for moving the magnetic read head across the magnetic recording disk surface to access the data stored thereon; and a data channel (includes 332, for instance) having sense circuitry coupled electrically to the magnetic tunnel junction sensor for detecting changes in resistance of the magnetic tunnel junction sensor caused by rotation of the magnetic moment of the free ferromagnetic layer relative to the fixed magnetic moment of the pinned layer responsive to magnetic fields representing the data stored on the magnetic recording disk surface [as per claims 1 and 11]; wherein the direct access storage device further comprises an insulating layer (6) of electrically nonconductive material (lines 58-59 in column 5, for instance) formed on and in contact with the free layer outside of the active region and in abutting contact with the two opposite sides of the active region (as shown in FIG. 5, for instance) [as per claims 2 and 12]; wherein the longitudinal bias layer is disposed without contacting the active region (as shown in FIG. 5, for instance) [as per claims 3, 6, 13 and 16]; and wherein the longitudinal bias layer comprises a hard magnetic material (lines 4-5 in column 6, for instance) [as per claims 4, 7, 14 and 17].

Pertinent Prior Art

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. This includes Wang et al. (US 6,330,136), Redon et al. (US 6,381,107), Shimazawa et al. (US 6,451,215), Redon et al. (US 6,469,879), Araki et al. (US 6,483,675) and Hayashi et al. (US 6,507,466), which each individually teaches a magnetic tunnel junction sensor with a free layer thereof spanning an active region and extending beyond opposite sides thereof and a longitudinal bias layer formed on and in contact with the free layer outside of the active region.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Craig A. Renner whose telephone number is (703) 308-0559. The examiner can normally be reached on Tuesday-Friday 7:30 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T. Nguyen can be reached on (703) 305-9687. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.



Craig A. Renner
Primary Examiner
Art Unit 2652

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